5.11 HYDROLOGY AND WATER QUALITY

This section analyzes potential project impacts on existing drainage patterns, surface hydrology, and flood control facilities and water quality conditions in the project area. Mitigation measures are recommended to avoid potential impacts or reduce them to a less than significant level. The discussion in this section is based on information and conclusions contained in the following studies:

- *Preliminary Hydrology Report Lido House Hotel* (Hydrology Study), prepared by Fuscoe Engineering, Inc., dated January 26, 2014; refer to Appendix 11.8, *Hydrology and Water Quality Technical Studies*.

- *Preliminary Water Quality Management Plan Lido House Hotel* (Preliminary WQMP), prepared by Fuscoe Engineering, Inc., dated January 28, 2014; refer to Appendix 11.8, *Hydrology and Water Quality Technical Studies*.

5.11.1 EXISTING SETTING

EXISTING HYDROLOGY AND DRAINAGE CONDITIONS

The project site is located within the Newport Bay watershed, which drains approximately 152.02 square miles to the Pacific Ocean within southern Orange County. The watershed encompasses all waters draining to Newport Bay. The project site is located within the Lower Newport Bay sub-area of the Newport Bay watershed.

The project site is relatively flat with the highest point being in the center of the site, in the location of the existing buildings. The site descends on all sides to the adjacent parking and roadway areas. Existing elevations vary from a high of approximately 10.1 feet in the center of the site to 8.8 feet in the adjacent streets. The catch basins on Newport Boulevard are at a flow line elevation of 6.6 feet.

Drainage on the site follows the topography of the land, with existing drainage patterns flowing westerly to Newport Boulevard, northerly to Via Lido Plaza, and southerly to Villa Way; refer to Exhibit 5.11-1, *Existing Drainage Conditions*. The majority of flow is taken westerly to the existing catch basins in Newport Boulevard. There are three relatively shallow catch basins in Newport Boulevard with depths of approximately two feet deep.

The most northerly catch basin (CB 1) captures flow from the southwest portion of Via Lido Plaza and a portion of the existing northerly parking lot. This basin is connected via two 12-inch connecting pipes to the existing catch basin at the southeast corner of the intersection of the main entry and Newport Boulevard (CB 2).

Catch basin 2 collects drainage from most of the northerly portion of the project site in addition to the drainage from catch basin 1 and directs flows via two 12-inch polyvinyl chloride (PVC) connecting pipes, westerly across Newport Boulevard to the existing municipal storm drain system.

The most southerly catch basin (CB 3) is located at the northeast corner of Newport Boulevard and 32nd Street. This basin collects drainage from the majority of the southern portion of the site, and a basin on the southeast corner of Newport Boulevard and 32nd Street and directs flow westerly across Newport Boulevard via a 15-inch Reinforced Concrete Pipe (RCP) connecting to the municipal storm drain system on the west side of Newport Boulevard.

Both existing municipal storm drain systems on the westerly side of Balboa Boulevard discharge to the Rivo Alto channel, part of Lower Newport Bay. Drainage to the north is directed through the existing Via Lido Plaza parking lot to an existing municipal storm drain system on the north side of that site. This flow discharges to the northwest upper end of Lower Newport Bay. The southeast portion of the site drains southerly in Villa Way to the existing municipal storm drain system serving 30th, 31st, and 32nd Streets. This system connects to the existing 36-inch RCP in 30th Street which discharges to the Rhine Canal in Lower Newport Bay. Table 5.11-1, *Existing Flowrates*, provides a summary of existing conditions for the 2-year, 10-year, 25-year, and 100-year storm event runoff for the project site.

Table 5.11-1
Existing Flowrates

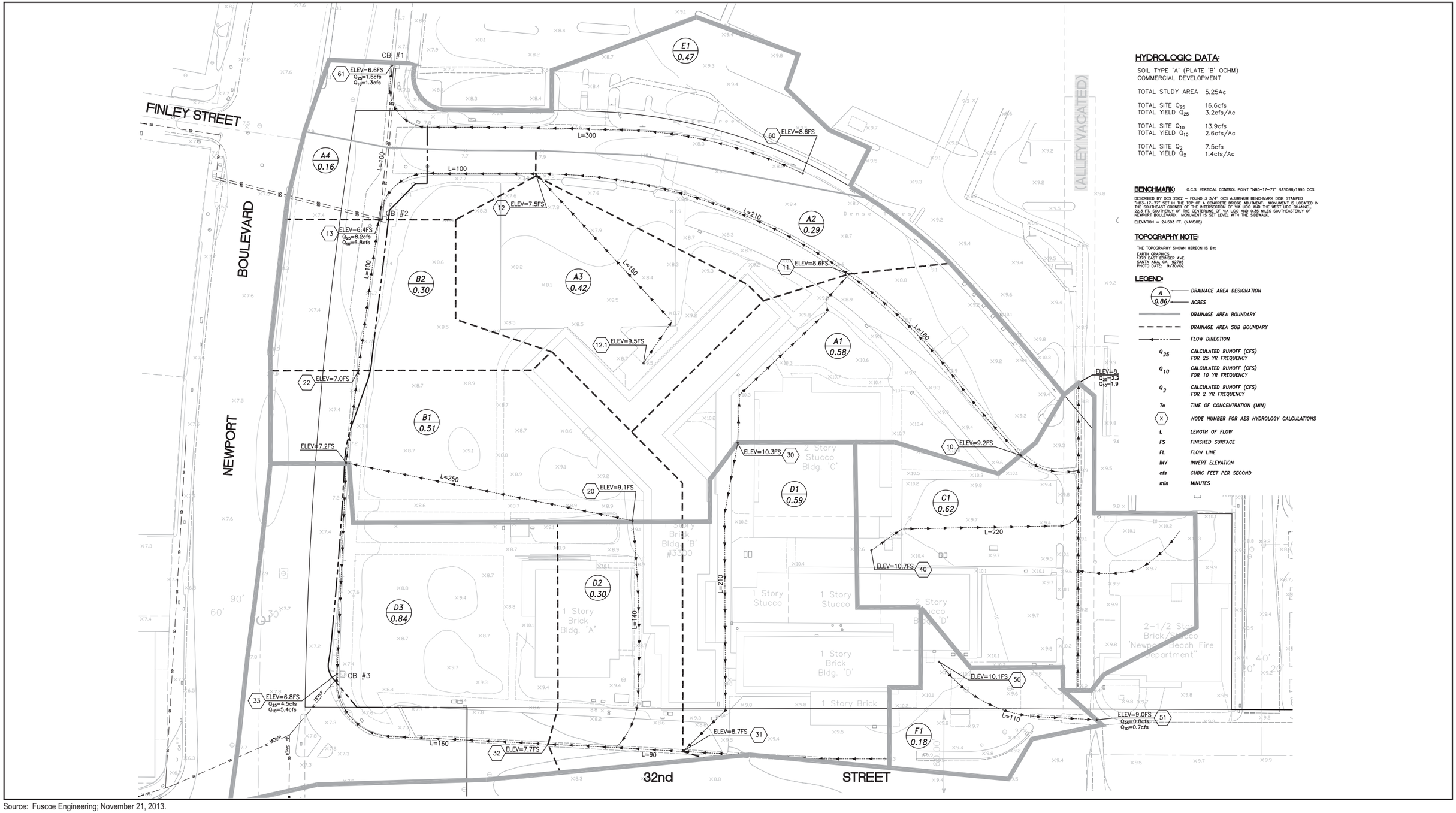
Area ID	Node	Area (Acres)	Flow (cfs)				Notes
			2-year	10-year	25-year	100-year	
A, B and E	13	2.72	3.7	6.8	8.2	8.6	Confluence CB 2 Newport Boulevard (includes flows to CB 1)
C	41	0.62	1.0	1.9	2.2	2.9	Drainage to Via Lido Shopping Center
D	33	1.73	2.4	4.5	5.4	6.9	Confluence CB 3 Newport Boulevard
F	51	0.18	0.4	0.7	0.8	1.0	Flow to Villa Way

CB = catch basin

Source: Fuscoe Engineering, Inc., *Preliminary Hydrology Report Lido House Hotel*, January 26, 2014.

EXISTING OFF-SITE MUNICIPAL STORM DRAIN FACILITIES

Exhibit 5.11-2, *Existing Off-Site Municipal Storm Drain Facilities*, depicts the existing layout and sizes of the municipal storm drain system serving the project area. A future City project involving realignment of the easterly curb line of Newport Boulevard will require that existing catch basins 1, 2, and 3 be reconstructed and potentially reconfigured. Per discussions with City of Newport Beach staff, the final alignment and design of the Newport Boulevard improvements are currently being designed and are not available at this time. It is anticipated that the connecting pipes crossing Newport Boulevard will remain in-place.



HYDROLOGIC DATA:

SOIL TYPE 'A' (PLATE 'B' OCHM)
COMMERCIAL DEVELOPMENT

TOTAL STUDY AREA	5.25Ac
TOTAL SITE Q_{25}	16.6cfs
TOTAL YIELD Q_{25}	3.2cfs/Ac
TOTAL SITE Q_{10}	13.9cfs
TOTAL YIELD Q_{10}	2.6cfs/Ac
TOTAL SITE Q_2	7.5cfs
TOTAL YIELD Q_2	1.4cfs/Ac

BENCHMARK: O.C.S. VERTICAL CONTROL POINT "NB3-17-77" NAVD88/1995 OCS

DESCRIBED BY OCS 2002 – FOUND 3 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "NB3-17-77" SET IN THE TOP OF A CONCRETE BRIDGE ABUTMENT. MONUMENT IS LOCATED IN THE SOUTHEAST CORNER OF THE INTERSECTION OF VIA LIDO AND THE WEST LIDO CHANNEL, 22.3 FT. SOUTHERLY OF THE CENTERLINE OF VIA LIDO AND 0.35 MILES SOUTHEASTERLY OF NEWPORT BOULEVARD. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

ELEVATION = 24.503 FT. (NAVD88)

TOPOGRAPHY NOTE:

THE TOPOGRAPHY SHOWN HEREON IS BY:
EARTH GRAPHICS
1370 EAST EDINGER AVE.
SANTA ANA, CA 92705
PHOTO DATE: 9/30/02

LEGEND:

A / 0.86	DRAINAGE AREA DESIGNATION / ACRES
	DRAINAGE AREA BOUNDARY
	DRAINAGE AREA SUB BOUNDARY
	FLOW DIRECTION
Q_{25}	CALCULATED RUNOFF (CFS) FOR 25 YR FREQUENCY
Q_{10}	CALCULATED RUNOFF (CFS) FOR 10 YR FREQUENCY
Q_2	CALCULATED RUNOFF (CFS) FOR 2 YR FREQUENCY
Tc	TIME OF CONCENTRATION (MIN)
X	NODE NUMBER FOR AES HYDROLOGY CALCULATIONS
L	LENGTH OF FLOW
FS	FINISHED SURFACE
FL	FLOW LINE
INV	INVERT ELEVATION
cfs	CUBIC FEET PER SECOND
min	MINUTES

Source: Fuscoe Engineering; November 21, 2013.

NOT TO SCALE

RBF CONSULTING A Baker Company

04/14 • JN 137892

LIDO HOUSE HOTEL
ENVIRONMENTAL IMPACT REPORT

Existing Drainage Conditions

Exhibit 5.11-1

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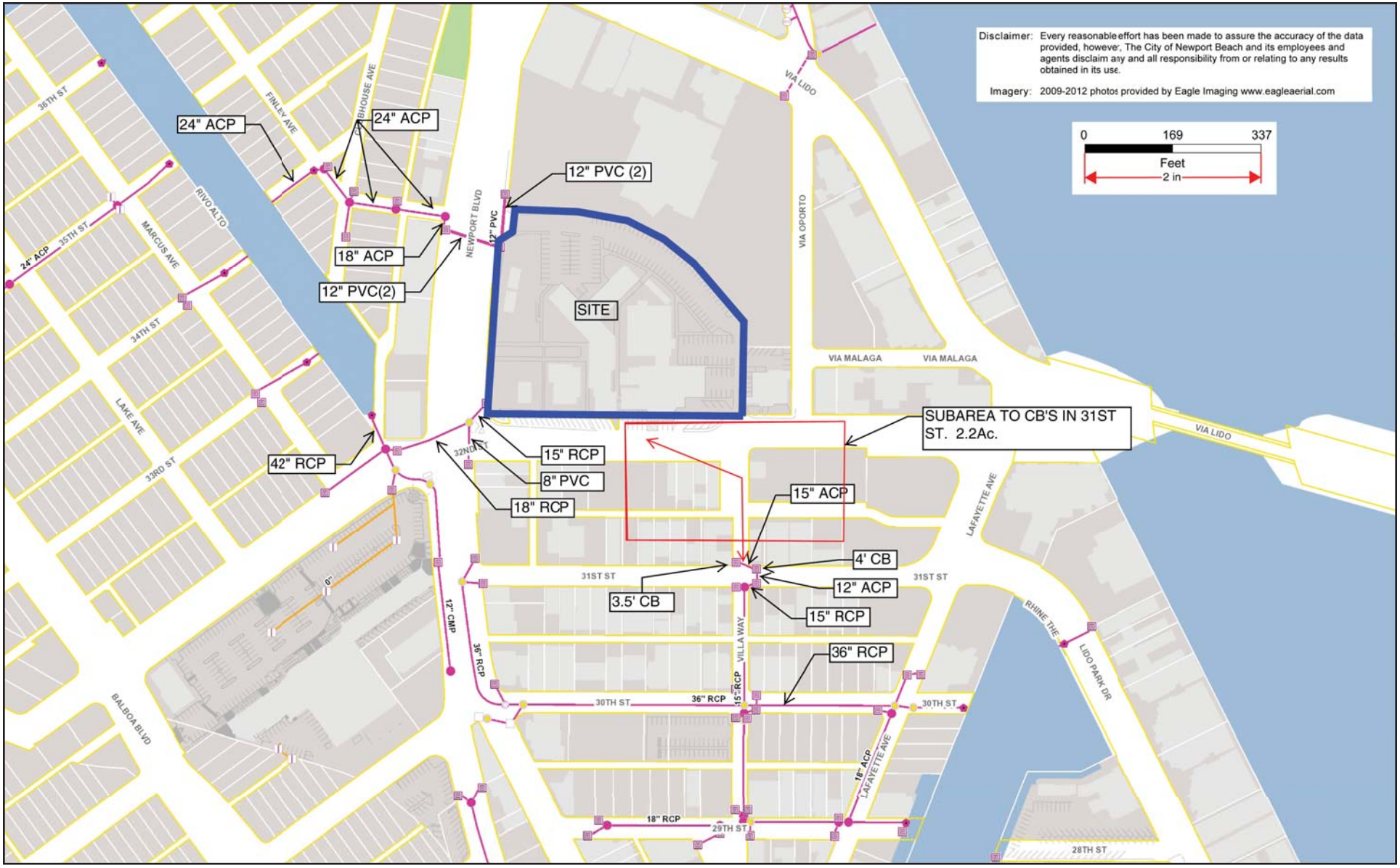


Source: City of Newport Beach GIS; January 24, 2014.

RBF CONSULTING A Baker Company

04/14 • JN 137892

LIDO HOUSE HOTEL
ENVIRONMENTAL IMPACT REPORT

Existing Off-Site Municipal Storm Drain Facilities

Exhibit 5.11-2

FLOODPLAIN MAPPING

The project site can be found on published Flood Insurance Rate Map (FIRM) Number 06059C0381J, dated December 3, 2009 and is located in Zone X, which is defined as areas of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. The Zone X designation is also used to identify base floodplains of lesser hazards, such as areas protected by levees from the one percent annual flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than one square mile; refer to Figure 5, *Flood Insurance Rate Map*, of the Hydrology Study (as provided in Appendix 11.8).

EXISTING STORM WATER QUALITY CONDITIONS

Nonpoint Source Pollutants

A net effect of urbanization can be to increase pollutant export over naturally occurring conditions. The impact of the higher export affects the adjacent streams and also the downstream receiving waters. However, an important consideration in evaluating storm water quality is to assess whether the beneficial use to the receiving waters is impaired. Nonpoint source pollutants have been characterized by the following major categories in order to assist in determining the pertinent data and its use. Receiving waters can assimilate a limited quantity of various constituent elements; however, there are thresholds beyond which the measured amount becomes a pollutant and results in an undesirable impact. Standard water quality categories of typical urbanization impacts are:

- *Sediment*. Sediment is made up of tiny soil particles that are washed or blown into surface waters. It is the major pollutant by volume in surface water. Suspended soil particles can cause the water to look cloudy or turbid. The fine sediment particles also act as a vehicle to transport other pollutants, including nutrients, trace metals, and hydrocarbons. Construction sites are the largest source of sediment for urban areas under development. Another major source of sediment is streambank erosion, which may be accelerated by increases in peak rates and volumes of run-off due to urbanization.

- *Nutrients*. Nutrients are a major concern for surface water quality, especially phosphorous and nitrogen, which can cause algal blooms and excessive vegetative growth. Of the two, phosphorus is usually the limiting nutrient that controls the growth of algae in lakes. The orthophosphorous form of phosphorus is readily available for plant growth. The ammonium form of nitrogen can also have severe effects on surface water quality. The ammonium is converted to nitrate and nitrite forms of nitrogen in a process called nitrification. This process consumes large amounts of oxygen, which can impair the dissolved oxygen levels in water. The nitrate form of nitrogen is very soluble and is found naturally at low levels in water. When nitrogen fertilizer is applied to lawns or other areas in excess of plant needs, nitrates can leach below the root zone, eventually reaching ground water. Orthophosphate from auto emissions also contributes phosphorus in areas with heavy automobile traffic. As a general rule of thumb, nutrient export is greatest from development sites with the most impervious areas. Other problems resulting from excess nutrients are: 1) surface algal scums; 2) water discolorations; 3) odors; 4) toxic releases; and 5) overgrowth of plants. Common measures for nutrients are total nitrogen, organic nitrogen, total Kjeldahl nitrogen (TKN), nitrate, ammonia, total phosphate, and total organic carbon (TOC).

- *Trace Metals*. Trace metals are primarily a concern because of their toxic effects on aquatic life, and their potential to contaminate drinking water supplies. The most common trace metals found in urban run-off are lead, zinc, and copper. Fallout from automobile emissions is also a major source of lead in urban areas. A large fraction of the trace metals in urban run-off are attached to sediment; this effectively reduces the level, which is immediately available for biological uptake and subsequent bioaccumulation. Metals associated with sediment settle out rapidly and accumulate in the soils. Urban run-off events typically occur over a shorter duration, reducing the amount of exposure, which could be toxic to the aquatic environment. The toxicity of trace metals in run-off varies with the hardness of the receiving water. As total hardness of the water increases, the threshold concentration levels for adverse effects increases.

- *Oxygen-Demanding Substances*. Aquatic life is dependent on the dissolved oxygen in the water. When organic matter is consumed by microorganisms, dissolved oxygen is consumed in the process. A rainfall event can deposit large quantities of oxygen-demanding substance in lakes and streams. The biochemical oxygen demand of typical urban run-off is on the same order of magnitude as the effluent from an effective secondary wastewater treatment plant. A problem from low dissolved oxygen (DO) results when the rate of oxygen-demanding material exceeds the rate of replenishment. Oxygen demand is estimated by direct measure of DO and indirect measures such as biochemical oxygen demand (BOD), chemical oxygen demand (COD), oils and greases, and TOC.

- *Bacteria*. Bacteria levels in undiluted urban run-off exceed public health standards for water contact recreation almost without exception. Studies have found that total coliform counts exceeded the U.S. Environmental Protection Agency's (EPA) water quality criteria at almost every site and almost every time it rained. The coliform bacteria that are detected may not be a health risk by themselves, but are often associated with human pathogens.

- *Oil and Grease*. Oil and grease contain a wide variety of hydrocarbons, some of which could be toxic to aquatic life in low concentrations. These materials initially float on water and create the familiar rainbow-colored film. Hydrocarbons have a strong affinity for sediment and quickly become absorbed to it. The major source of hydrocarbons in urban run-off is through leakage of crankcase oil and other lubricating agents from automobiles. Hydrocarbon levels are highest in the run-off from parking lots, roads, and service stations. Residential land uses generate less hydrocarbon export, although illegal disposal of waste oil into storm water can be a local problem.

- *Other Toxic Chemicals*. Priority pollutants are generally related to hazardous wastes or toxic chemicals and can be sometimes detected in storm water. Priority pollutant scans have been conducted in previous studies of urban run-off, which evaluated the presence of over 120 toxic chemicals and compounds. The scans rarely revealed toxins that exceeded the current safety criteria. The urban run-off scans were primarily conducted in suburban areas not expected to have many sources of toxic pollutants (with the possible exception of illegally disposed or applied household hazardous wastes). Measures of priority pollutants in storm water include: 1) phthalate (plasticizer compound); 2) phenols and creosols (wood preservatives); 3) pesticides and herbicides; 4) oils and greases; and 5) metals.

PHYSICAL CHARACTERISTICS OF SURFACE WATER QUALITY

Standard parameters, which can assess the quality of storm water, provide a method of measuring impairment. A background of these typical characteristics assists in understanding water quality requirements. The quantity of a material in the environment and its characteristics determine the degree of availability as a pollutant in surface run-off. In an urban environment, the quantity of certain pollutants in the environment is a function of the intensity of the land use. For instance, a high density of automobile traffic makes a number of potential pollutants (such as lead and hydrocarbons) more available. The availability of a material, such as a fertilizer, is a function of the quantity and the manner in which it is applied. Applying fertilizer in quantities that exceed plant needs leaves the excess nutrients available for loss to surface or ground water.

The physical properties and chemical constituents of water traditionally have served as the primary means for monitoring and evaluating water quality. Evaluating the condition of water through a water quality standard refers to its physical, chemical, or biological characteristics. Water quality parameters for storm water comprise a long list and are classified in many ways. Typically, the concentration of an urban pollutant, rather than the annual load of that pollutant, is required to assess a water quality problem. Some of the physical, chemical, or biological characteristics that evaluate the quality of the surface run-off are listed below.

- *Dissolved Oxygen*. DO in the water has a pronounced effect on the aquatic organisms and the chemical reactions that occur. It is one of the most important biological water quality characteristics in the aquatic environment. The DO concentration of a water body is determined by the solubility of oxygen, which is inversely related to water temperature, pressure, and biological activity. DO is a transient property that can fluctuate rapidly in time and space, and represents the status of the water system at a particular point and time of sampling. The decomposition of organic debris in water is a slow process, as are the resulting changes in oxygen status. The oxygen demand is an indication of the pollutant load and includes measurements of biochemical oxygen demand or chemical oxygen demand.

- *Biochemical Oxygen Demand*. The BOD is an index of the oxygen-demanding properties of the biodegradable material in the water. Samples are taken from the field and incubated in the laboratory at 20°C, after which the residual dissolved oxygen is measured. The BOD value commonly referenced is the standard 5-day values. These values are useful in assessing stream pollution loads and for comparison purposes.

- *Chemical Oxygen Demand*. The COD is a measure of the pollutant loading in terms of complete chemical oxidation using strong oxidizing agents. It can be determined quickly because it does not rely on bacteriological actions as with BOD. COD does not necessarily provide a good index of oxygen demanding properties in natural waters.

- *Total Dissolved Solids*. Total dissolved solids (TDS) concentration is determined by evaporation of a filtered sample to obtain residue whose weight is divided by the sample volume. The TDS of natural waters varies widely. There are several reasons why TDS is an important indicator of water quality. Dissolved solids affect the ionic bonding strength related to other pollutants such as metals in the water. TDS are also a major determinant of aquatic habitat. TDS affects saturation concentration of dissolved oxygen and influences the ability of a water body to assimilate wastes. Eutrophication rates depend on TDS.

- *pH*. The pH of water is the negative log, base 10, of the hydrogen ion (H^+) activity. A pH of 7 is neutral; a pH greater than 7 indicates alkaline water; a pH less than 7 represents acidic water. In natural water, carbon dioxide reactions are some of the most important in establishing pH. The pH at any one time is an indication of the balance of chemical equilibrium in water and affects the availability of certain chemicals or nutrients in water for uptake by plants. The pH of water directly affects fish and other aquatic life; generally, toxic limits are pH values less than 4.8 and greater than 9.2.

- *Alkalinity*. Alkalinity is the opposite of acidity, representing the capacity of water to neutralize acid. Alkalinity is also linked to pH and is caused by the presence of carbonate, bicarbonate, and hydroxide, which are formed when carbon dioxide is dissolved. A high alkalinity is associated with a high pH and excessive solids. Most streams have alkalinities less than 200 milligrams per liter (mg/l). Ranges of alkalinity of 100-200 mg/l seem to support well-diversified aquatic life.

- *Specific Conductance*. The specific conductivity of water, or its ability to conduct an electric current, is related to the total dissolved ionic solids. Long term monitoring of project waters can develop a relationship between specific conductivity and TDS. Its measurement is quick and inexpensive and can be used to approximate TDS. Specific conductivities in excess of 2000 microohms per centimeter (µohms/cm) indicate a TDS level too high for most freshwater fish.

- *Turbidity*. The clarity of water is an important indicator of water quality that relates to the alkalinity of photosynthetic light to penetrate. Turbidity is an indicator of the property of water that causes light to become scattered or absorbed. Turbidity is caused by suspended clays and other organic particles. It can be used as an indicator of certain water quality constituents, such as predicting sediment concentrations.

- *Nitrogen*. Sources of nitrogen in storm water are from the additions of organic matter to water bodies or chemical additions. Ammonia and nitrate are important nutrients for the growth of algae and other plants. Excessive nitrogen can lead to eutrophication since nitrification consumes dissolved oxygen in the water. Nitrogen occurs in many forms. Organic nitrogen breaks down into ammonia, which eventually becomes oxidized to nitrate-nitrogen, a form available for plants. High concentrations of nitrate-nitrogen (N/N) in water can stimulate growth of algae and other aquatic plants, but if phosphorus (P) is present, only about 0.30 mg/l of nitrate-nitrogen is needed for algal blooms. Some fish life can be affected when nitrate-nitrogen exceeds 4.2 mg/l. There are a number of ways to measure the various forms of aquatic nitrogen. Typical measurements of nitrogen include Kjeldahl nitrogen (organic nitrogen plus ammonia), ammonia, nitrite plus nitrate, nitrite, and nitrogen in plants. The principal water quality criterion for nitrogen focuses on nitrate and ammonia.

- *Phosphorus*. Phosphorus is an important component of organic matter. In many water bodies, phosphorus is the limiting nutrient that prevents additional biological activity from occurring. The origin of this constituent in urban storm water discharge is generally from fertilizers and other industrial products. Orthophosphate is soluble and is considered to be the only biologically available form of phosphorus. Since phosphorus strongly associates with solid particles and is a significant part of organic material, sediments influence concentration in water and are an important component of the phosphorus cycle in streams.

Important methods of measurement include detecting orthophosphate and total phosphorus.

Existing Storm Water Quality Conditions

The existing site lacks any measured data on storm water runoff quality. In the absence of site-specific data, expected storm water quality can be qualitatively discussed by relating typical pollutants to specific land uses.

Newport Bay is classified as an impaired water body and has been placed on the 303(d) list of impaired waters for the following pollutants: chlordane, copper, dichlorodiphenyltrichloroethane (DDT), indicator bacteria, nutrients, polychlorinated biphenyls (PCBs), pesticides, and sediment toxicity.

The Santa Ana Regional Water Quality Control Board (RWQCB) has set Total Maximum Daily Loads (TMDLs) for metals, nutrients, pathogens, pesticides, priority organics, and siltation within the Lower Newport Bay. A TMDL sets a limit for the total amount of a particular pollutant that can be discharged to a waterbody, such that the pollutant loads from all sources will not impair the designated beneficial uses of the waterbody. The timeframe for compliance with TMDL targets varies, but may take many years. TMDLs will often include a compliance schedule, identifying interim and final targets.

The project site is currently occupied by the former Newport Beach City Hall Complex. According to the Countywide Model WQMP Technical Guidance Document (May 2011), former and existing uses at the site are assumed to generate suspended solid/sediments, nutrients, heavy metals, pathogens, pesticides, oil and grease, toxic organic compounds and trash and debris.

Beneficial Uses

The Santa Ana RWQCB adopted a Water Quality Control Plan for the Santa Ana River Basin (Basin Plan), which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems. The Basin Plan identifies beneficial uses for waters within the Santa Ana Region. A beneficial use is one of the various ways that water can be used for the benefit of people and/or wildlife. Although more than one beneficial use may be identified for a given waterbody, the most sensitive use must be protected. The Basin Plan identifies the following beneficial uses for Lower Newport Bay:

- NAV – Navigation;
- REC1 – Water Contact Recreation;
- REC2 – Non-contact water recreation;
- COMM – Commercial and Sportfishing;
- WILD – Wildlife Habitat;
- RARE – Rare, threatened, and endangered species;
- SPWN – Spawning, Reproduction, and Development;
- MAR – Marine Habitat; and
- SHEL – Shellfish Harvesting.

Environmentally Sensitive Areas

The project site is not located within 200 feet of an Environmentally Sensitive Area (ESA) or Areas of Special Biological Significance (ASBS).

TSUNAMI, ROGUE WAVES, SEICHE, AND MUDFLOW RUN-UP

Tsunamis

A tsunami is a seismic sea-wave caused by sea-bottom deformations that are typically associated with a submarine earthquake. They are also generated by landslides, volcanic eruptions, or more rarely by asteroid impact. The California Emergency Management Agency, in cooperation with California Geological Survey and University of Southern California, produced a Tsunami Inundation Map for the Newport Beach Quadrangle (dated March 15, 2009) that depicts the project site as located within a tsunami inundation area. However, the probability and severity of tsunami inundation in lowland areas cannot be estimated based on current available information.[1]

The Newport Beach General Plan (General Plan) Safety Element identifies the City as being susceptible to low-probability, but high-risk events such as tsunamis. According to General Plan Figure S1, *Coastal Hazards*, the project site is located within a "100-year tsunami inundation at extreme high tide zone," with an identified inundation elevation of 13.64 feet.

Rogue Waves

Rogue waves are very high waves that arise unexpectedly in the open ocean. These waves are difficult to plan for as they are unpredictable. Rogue waves have historically impacted the Orange County coast and have the potential to impact Newport Beach in the future. According to Safety Element Figure S1, *Coastal Hazards* and Figure S3, *Flood Hazards*, the project site is not located within an area identified as having the potential for wave action.

Seiching

Seiching involves an enclosed body of water oscillating due to ground shaking, usually following an earthquake. Lakes and water towers are typical bodies of water affected by seiching. According to the General Plan EIR, areas of the City that may be vulnerable to seiching are primarily improvements located next to waterways, such as Newport Harbor, and the southern part of Upper Newport Bay.

Mudflows

Mudflows result from the downslope movement of soil and/or rock under the influence of gravity. The project site and surrounding area is relatively flat. Given the character and topography of the project site and surrounding area, the likelihood of mudflow at the project site is considered remote.

[1] GMU Geotechnical, Inc., *Report of Geotechnical Investigation, Lido House Hotel – City Hall Site Reuse Project* December 4, 2013.

5.11.2 REGULATORY SETTING

This section discusses the Federal, State, and local drainage policies and requirements applicable to the project site.

FEDERAL LEVEL

Federal Clean Water Act (Section 404)

The project would be subject to Federal permit requirements under the Federal Clean Water Act (CWA). The CWA requires that the discharge of pollutants to "Waters of the U.S." from any point source be effectively prohibited, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit. Under the NPDES permit program, the EPA established regulations for discharging storm water by municipal and industrial facilities and construction activities.

The NPDES permit is broken up into two Phases: I and II. Phase I requires medium and large cities, or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their storm water discharges. Phase II requires regulated small Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their storm water discharges. Polluted storm water run-off is commonly transported through MS4s. This run-off is often untreated and discharged into local water bodies.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) was created by Congress in 1968. It provided a means for property owners to financially protect themselves from flood damage. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the program. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding. The City of Newport Beach is a participating community and must adhere to the NFIP.

STATE LEVEL

California Porter-Cologne Act

The CWA places the primary responsibility for the control of surface water pollution and for planning the development and use of water resources with the states, although it does establish certain guidelines for the states to follow in developing their programs and allows the EPA to withdraw control from states with inadequate implementation mechanisms.

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of

hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a water quality control plan for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its state water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

State Water Resources Control Board

The SWRCB administers water rights, water pollution control, and water quality functions throughout the State, while the RWQCBs conduct planning, permitting, and enforcement activities. For the proposed project, the NPDES permit is divided into two parts: construction and post-construction. The construction permitting is administered by the SWRCB, while the post-construction permitting is administered by the RWQCB.

Development projects typically result in the disturbance of soil that requires compliance with the NPDES General Permit, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activities (Order No. 2009-0009-DWQ, NPDES Number CAS000002). This Statewide General Construction permit regulates discharges from construction sites that disturb one or more acres of soil. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre of total land area must comply with the provisions of this NPDES Permit, and develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). The project applicant must submit a Notice of Intent (NOI) to the SWRCB, to be covered by the NPDES General Permit, and prepare the SWPPP before beginning construction. Implementation of the plan starts with the commencement of construction and continues through the completion of the project. Upon completion of the project, the applicant must submit a Notice of Termination (NOT) to the SWRCB to indicate that construction is completed.

REGIONAL LEVEL

Santa Ana Regional Water Quality Control Board

The SWRCB oversees the nine RWQCBs in the state of California. The City of Newport Beach is within the jurisdictional boundaries of the Santa Ana RWQCB (Region 8). The NPDES Municipal Separate Stormwater Sewer Systems (MS4) permit program is administered by the RWQCB, which develops and enforces water quality objectives and implementation plans that safeguard the quality of water resources in its region. Its duties include developing "basin plans" for its hydrologic area, issuing waste discharge requirements, taking enforcement action against violators, and monitoring water quality.

To prevent harmful pollutants from being washed or dumped into MS4s, facilities must comply with the NPDES permit and develop a storm water management program (SWMP). The goal of the SWMP is to reduce the contamination of storm water run-off and prohibit illicit discharges.

California Coastal Commission

The California Coastal Commission (CCC) was established by voter initiative in 1972 (Proposition 20) and later made permanent by the Legislature through adoption of the California Coastal Act of 1976. The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. Development activities, which are broadly defined by the Coastal Act to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the CCC or the local government. A Coastal Development Permit (CDP) would be required prior to any construction activities within the project site since it is located within the coastal zone.

Non-Point Source Pollution Control Program

The purpose of the Non-Point Source Pollution (NPS) Control Program (NPS Program Plan) is to improve the State's ability to effectively manage NPS pollution and conform to the requirements of the CWA and the Federal Coastal Zone Act Reauthorization Amendments of 1990. These documents were developed by staff of the SWRCB's Division of Water Quality and the CCC, in coordination with the RWQCBs and staff from over 20 other State agencies.

Orange County Public Works

The specific water pollutant control elements of the Orange County Stormwater Program are documented in the *2003 Drainage Area Management Plan* (DAMP). The Orange County Stormwater Program is a municipal regulatory compliance initiative focused on the management and protection of Orange County's streams, rivers, creeks, and coastal waters.

The Orange County DAMP is the Permittees' (County of Orange, the Orange County Flood Control District, and the incorporated cities of Orange County) primary policy, planning, and implementation document for municipal NPDES Stormwater Permit compliance. The focus of the DAMP is addressing the impacts of urban runoff on water quality.

Fourth Term Permits were adopted in the Santa Ana Region (Permit No. CAS618030, Order No. R8-2009-0030, amended by Order R8-2010-0062) in 2009. In response, an updated *Exhibit 7.II - Model Water Quality Management Plan* (Model WQMP) along with a Technical Guidance Document (TGD), dated May 19, 2011, were prepared. The Model WQMP and TGD were approved by the Santa Ana Regional Board on May 19, 2011.

The Orange County Permittees submitted a Report of Waste Discharge on October 3, 2013 to apply for a Fifth Term Permit. Upon issuance of the Fifth Term Permit, the DAMP will be updated and new programs developed as required.

LOCAL LEVEL

City of Newport Beach General Plan

City policies pertaining to hydrology and water quality are contained in the Natural Resources and Safety Elements of the General Plan. These policies include the following:

- Storm Drain Sewer System Permit (NR3.4)
  Require all development to comply with the regulations under the City's municipal separate storm drain system permit under the National Pollutant Discharge Elimination System.

- Natural Water Bodies (NR 3.5)
  Require that development not result in the degradation of natural water bodies.

- Water Quality Management Plan (NR 3.9)
  Require new development applications to include a Water Quality Management Plan (WQMP) to minimize runoff from rainfall events during construction and post-construction.

- Best Management Practices (NR 3.10)
  Implement and improve upon Best Management Practices (BMPs) for residences, businesses, development projects, and City operations.

- Site Design and Source Control (NR 3.11)
  Include site design and source control BMPs in all developments. When the combination of site design and source control BMPs are not sufficient to protect water quality as required by the National Pollutant Discharge Elimination System (NPDES), structural treatment BMPs will be implemented along with site design and source control measures.

- Reduction of Infiltration (NR 3.12)
  Include equivalent BMPs that do not require infiltration, where infiltration of runoff would exacerbate geologic hazards.

- Parking Lots and Rights-of-Way (NR 3.17)
  Require that parking lots and public and private rights-of-way be maintained and cleaned frequently to remove debris and contaminated residue.

- Natural Drainage Systems (NR 3.19)
  Require incorporation of natural drainage systems and storm water detention facilities into new developments, where appropriate and feasible, to retain storm water in order to increase groundwater recharge.

- Impervious Surfaces (NR 3.20)
  Require new development and public improvements to minimize the creation of and increases in impervious surfaces, especially directly connected impervious areas, to the maximum extent practicable. Require redevelopment to increase area of pervious surfaces, where feasible.

- New Development Design within 100-year Floodplains (S 5.1)
  Require that all new development within 100-year floodplains incorporate sufficient measures to mitigate flood hazards including the design of onsite drainage systems that are connected with the City's storm drainage system, gradation of the site such that runoff does not impact adjacent properties, and buildings are elevated.

Newport Beach Local Coastal Program Land Use Plan

The City of Newport Beach Local Coastal Program Coastal Land Use Plan (CLUP) sets forth goals, objectives, and policies that govern the use of land and water in the coastal zone within the City of Newport Beach and Sphere of Influence (SOI), with the exception of Newport Coast and Banning Ranch. The following policies related to hydrology and water quality issues may be applicable to the proposed project.

- Review all applications for new development to determine potential threats from coastal and other hazards. (2.8.1-1)

- Design and site new development to avoid hazardous areas and minimize risks to life and property from coastal and other hazards. (2.8.1-2)

- Require new development to provide adequate drainage and erosion control facilities that convey site drainage in a non-erosive manner in order to minimize hazards resulting from increased runoff, erosion and other hydrologic impacts to streams. (2.8.7-2)

- Promote pollution prevention and elimination methods that minimize the introduction of pollutants into coastal waters, as well as the generation and impacts of dry weather and polluted runoff. (4.3.2-1)

- Require that development not result in the degradation of coastal waters (including the ocean, estuaries and lakes) caused by changes to the hydrologic landscape. (4.3.2-2)

- Continue to update and enforce the Newport Beach Water Quality Ordinance consistent with the MS4 Permit. (4.3.2-4)

- Implement and improve upon best management practices (BMPs) for residences, businesses, new development and significant redevelopment, and City operations. (4.3.2-6)

- Incorporate BMPs into the project design in the following progression:

    - Site Design BMPs.
    - Source Control BMPs.
    - Treatment Control BMPs.

    Include site design and source control BMPs in all developments. When the combination of site design and source control BMPs are not sufficient to protect water quality as required by the LCP or Coastal Act, structural treatment BMPs will be implemented along with site design and source control measures. (4.3.2-7)

- To the maximum extent practicable, runoff should be retained on private property to prevent the transport of bacteria, pesticides, fertilizers, pet waste, oil, engine coolant, gasoline, hydrocarbons, brake dust, tire residue, and other pollutants into recreational waters. (4.3.2-8)

- To the maximum extent practicable, limit the use of curb drains to avoid conveying runoff directly to the City's street drainage system without the benefit of absorption by permeable surfaces and natural treatments such as landscaped areas and planters. (4.3.2-9)

- Require new development to minimize the creation of and increases in impervious surfaces, especially directly connected impervious areas, to the maximum extent practicable. Require redevelopment to increase area of pervious surfaces, where feasible. (4.3.2-11)

- Require development to protect the absorption, purification, and retention functions of natural drainage systems that exist on the site, to the maximum extent practicable. Where feasible, design drainage and project plans to complement and utilize existing drainage patterns and systems, conveying drainage from the developed area of the site in a non-erosive manner. Disturbed or degraded natural drainage systems should be restored, where feasible. (4.3.2-12)

- Whenever possible, divert runoff through planted areas or sumps that recharge the groundwater dry wells and use the natural filtration properties of the earth to prevent the transport of harmful materials directly into receiving waters. (4.3.2-14)

- Where infiltration of runoff would exacerbate geologic hazards, include equivalent BMPs that do not require infiltration. (4.3.2-15)

- Condition coastal development permits to require the City, property owners, or homeowners associations, as applicable, to sweep permitted parking lots and public and private streets frequently to remove debris and contaminated residue. (4.3.2-18)

- Require parking lots and vehicle traffic areas to incorporate BMPs designed to prevent or minimize runoff of oils and grease, car battery acid, coolant, gasoline, sediments, trash, and other pollutants to receiving waters. (4.3.2-19)

- Require commercial development to incorporate BMPs designed to prevent or minimize the runoff of pollutants from structures, landscaping, parking areas, loading and unloading dock areas, repair and maintenance bays, and vehicle/equipment wash areas. (4.3.2-20)

- Require new development applications to include a Water Quality Management Plan (WQMP). The WQMP's purpose is to minimize to the maximum extent practicable dry weather runoff, runoff from small storms (less than ¾" of rain falling over a 24-hour period) and the concentration of pollutants in such runoff during construction and post-construction from the property. (4.3.2-23)

Newport Beach City Council Policies

Council Policy L-18 – Protection of Water Quality: Drainage – Public Rights-of-Way

A. Curb Drains. Curb drains have been utilized as a means of draining sump areas and roof drains within a property by conveying flows via subsurface piping systems to the curb gutter. Curb drains typically convey runoff directly to the City's street drainage system without the benefit of absorption by permeable surfaces and natural treatments such as landscaped areas and planters.

Whenever possible, runoff shall be diverted through planted areas or sumps that recharge the groundwater. The use of permeable surfaces affords the opportunity to use the natural filtration properties of the earth to prevent the transport of harmful pollutants directly to our water resources. The use of curb drains to drain private residential and commercial property shall only be permitted as follows:

1. New Development/Redevelopment – see Policy L-22.

2. Reconstruction or Grading of Existing Properties – The grading/drainage for additions and/or modifications to existing properties including the construction of patios, decks, roof drains, downspouts, gutters or substantial grading remodel (grading affecting over 50% of the existing yard/setback areas that alter existing drainage patterns) shall be designed to retain and/or direct urban runoff into planted/permeable areas. Curb drains and subsurface piping shall be permitted for secondary or overflow of hardscape or planted areas to prevent dwellings from flooding due to significant (defined for this Policy as more than 3/4" of rain in any 24-hour period) storm events only. Curb drains may be permitted to correct existing drainage problems on a case-by-case basis after all reasonable alternatives are explored. Curb drains, when approved, shall have a French drain system of perforated pipe and gravel unless site-specific circumstances endanger public safety so as to prohibit its use as determined by the Public Works Director.

B. Parkway permeability. The City's parkway areas represent the last opportunity to retain and allow urban runoff to percolate into the earth before entering the City's street drainage system. Non-sidewalk areas within the City's parkway areas (defined as the area between the curb and the street right of way/property line) shall utilize permeable surfaces that permit the percolation of urban runoff. Non-permeable parkway surfacing within the area between the street curb and sidewalk for decorative (non-pedestrian) purposes, installed at grade, not to exceed 25% of the parkway area (between back of curb and sidewalk) less driveways when installed in conjunction with landscaping, irrigation, and street trees is permitted in accordance with Council Policy L-6. Decorative materials include colored, stamped, and patterned concrete; brick, pavers, and stone masonry, pavers, flat stone, and brick set in sand; and other materials as approved by the Public Works Department.

C. Down Slope Drains. Wherever practical, private property drainage shall be diverted away from bluffs or steep slopes (2:1 slopes or greater). The design shall include:

1. Hydrological and hydraulic calculations in conformance with the latest edition of the Orange County Drainage Design Manual;

2. Subsurface piping system utilizing approved piping materials which incorporate sealed joints;

3. The drainage system shall have a French drain system of perforated pipe and gravel, or similar device to percolate low flow urban runoff unless site-specific circumstances endanger public safety or improvements so as to prohibit its use as determined by the Public Works Director and/or the project soils engineer does not allow percolation; and

4. Any permitted flow shall not create continuous standing water within City street gutters, pose a hazard to safe motor vehicle or pedestrian use, or create a nuisance such as odor

or algae growth. The property owner will accept responsibility to maintain the slope drainage facility and will execute a non-standard permit agreement with the City. The City reserves the right to revoke this agreement at any time for non-compliance.

D. Sump Pump discharges into the public right of way. Permanent sump pump discharges shall be permitted as follows:

1. Permitted sump pump discharges shall be filtered and piped directly to the City's storm drain system. Connections to the city's storm drain shall be in accordance with City standards and executed under a valid encroachment permit from the Public Works Department.

2. The permittee and the City have executed a non-standard permit agreement which authorizes the City to revoke the permit at any time for non-compliance.

3. Discharges from permanently installed sump pumps of basement garage spaces (areas with motor vehicle storage) shall not be permitted within the public right of way.

4. Storage areas and living areas below natural grade as permitted by the Building Division may discharge sump pump flow into the City's street drainage system provided that:

- The property owner show evidence of all approved permits as required by the Regional Water Quality Control Board and other jurisdictional agencies;

- The discharge flow must not be continuous and be shown to be less than five (5) gallons per day; and

- The permitted flow shall not create continuous standing water within City street gutters, pose a hazard to safe motor vehicle or pedestrian use, or create a nuisance such as odor or algae growth.

E. Construction Dewatering. Construction dewatering as permitted by the Building Division may discharge pump flow into the City's street drainage system provided that:

1. The property owner show evidence of all approved permits as required by the Regional Board and other jurisdictional agencies;

2. The permitted flow shall not create continuous standing water within City street gutters, pose a hazard to safe motor vehicle or pedestrian use, or create a nuisance such as odor or algae growth; and

3. An encroachment permit is executed in accordance with City Council Policy L-6, including authorization for the City to revoke this permit at any time for non-compliance.

Council Policy L-22 – Protection of Water Quality: Water Quality Management Plans for New Development and Redevelopment

New development or redevelopment, as defined in the model Water Quality Management Plan (WQMP), presents the City and the public with the opportunity to reduce the impacts of runoff that would otherwise drain to the City's street drainage system and our harbors, bays, and ocean. At the time of submittal of an application for a new development or redevelopment project, an applicant shall submit a WQMP to the City. The WQMP's purpose is to minimize to the maximum extent practicable dry weather runoff and runoff from small storms (less than 3/4" of rain falling over a 24-hour period) during construction and post-construction from the property. The following are components of any WQMP:

A. Design Elements - All Development Types. Each applicant's WQMP shall attempt to infiltrate or treat projected runoff for the new development by an amount equal to or greater than the volume of runoff produced from a storm event through incorporation of design elements that address one or more of the goals set forth below. The design elements utilized by an applicant may, but are not required to, include those provided on the list below so long as the required projected runoff infiltration or treatment is achieved:

1. Maximize permeable areas to allow more percolation of runoff into the ground through such means as biofilters, green strips, landscaped swales, planters, and other retention/ percolation devices as approved. The use of permeable materials in lieu of or to replace hardscapes will increase the amount of runoff seepage into the ground.

2. Maximize the amount of runoff directed to permeable areas and/or maximize stormwater storage for reuse or infiltration. For the purposes of this Policy, pools, spas, and water features shall not be considered permeable surfaces.

Acceptable and encouraged design elements include:

1. Orienting roof runoff towards permeable surfaces, drywells, French drains, or other structural BMPs rather than directly to driveways or non-permeable surfaces so that runoff will penetrate into the ground instead of flowing off-site.

2. Grading the site to divert runoff to permeable areas.

3. Using cisterns, retention structures or green rooftops to store precipitation or runoff for reuse.

4. Removing or designing curbs, berms or the like so as to avoid isolation of permeable or landscaped areas.

5. Remove pollutants through installation of treatment control BMPs such as filters, clarifiers, and other devices as approved.

B. Design Elements -- Commercial, Retail, and Multi-Family Residential. These design elements shall be required for all new development:

1. Urban runoff shall not be allowed to come into contact with the following areas:

    - Loading and unloading dock areas;
    - Repair and maintenance bays;
    - Vehicle and equipment wash areas; and
    - Fueling areas.

2. Where new development/redevelopment will include outdoor areas for the storage of material that may contribute pollutants to the storm water conveyance system, these materials must be:

    - Placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or
    - Protected by secondary containment structures such as berms, dikes, or curbs.

3. The outdoor materials storage areas subject to this section must be:

    - Paved and sufficiently impervious to contain leaks and spills; and
    - Covered with a roof or awning to minimize collection of storm water within the secondary containment area.

4. The area where a trash receptacle or receptacles are located for use as a repository for solid wastes must meet the following structural or treatment control BMPs:

    - Drainage from adjoining roofs and pavement must be diverted away from the trash storage areas;
    - The area must be covered with roof or awning (to prevent rain from entering the area and sewer or storm drain conveyance system), screened or walled to prevent off-site transport of trash, and connected to the sanitary sewer; and
    - Trash bins must have solid covers and be covered at all times except while being emptied.

5. Any construction project adding down spouts, gutters and subsurface pipes directing stormwater thru the curb face shall have a French drain system of perforated pipe and gravel unless site-specific circumstances endanger public safety so as to prohibit its use as determined by the Building Division or Public Works Department. Dry-weather runoff shall not drain over public right-of-way, such as sidewalks, decorative paving or City parkland.

C. Use of Moisture-Detecting or Weather-Based Irrigation Systems. All WQMPs must describe how the applicant plans to use irrigation systems that are automated and controlled by either a weather-based satellite system or by direct moisture detection in the soil.

D. Long-Term Maintenance. The WQMP must also include the applicant's plan for the long-term and continuous maintenance of all BMP's requiring ongoing maintenance and the applicant's signed statement accepting responsibility for the maintenance of all structural and treatment control BMPs. Any transfer or sale of property subject to a Water Quality

Management Plan must include as a written condition to the transfer or sale such that the transferee assumes full responsibility for maintenance of any structural, and/or source or treatment control BMPs.

E. Evaluation of WQMPs. The City's evaluation of each Water Quality Management Plan will ascertain if the proposed plan meets the standards set forth in this Policy. Each plan will be evaluated on its own merits according to the particular characteristics of the project and the site to be developed. The Building Official or Public Works Director, or their respective designee shall approve or disapprove the plan. If the plan is disapproved, the reasons for disapproval shall be given in writing to the applicant. Any plan disapproved by the Building Official or Public Works Director or their respective designee must be revised by the developer and resubmitted for approval. No building permit shall be issued until the final WQMP has been approved by the Building Division or Public Works Department.

F. Waiver. The WQMP required under this Policy may be waived by the Building Official or Public Works Director or his or her designee if the applicant demonstrates the impracticability of implementing this Policy's requirements. Recognized circumstances demonstrating impracticability may include:

1. Extreme limitations of space for treatment;

2. Unfavorable or unstable soil conditions at a site to attempt infiltration; and

3. Risk of groundwater contamination because a known unconfined aquifer lies beneath the land surface or an existing or potential underground source of drinking water is less than ten feet from the soil surface.

Any other justification for impracticability must be separately petitioned by the applicant to the City Manager and, where applicable, the Regional Board for advice and consideration. If a waiver is granted for impracticability, the petitioner will be required to transfer the savings in cost, as determined by the Building Official or Public Works Director, to the City's Runoff Mitigation Account. This Account shall be used to promote regional or alternative solutions for runoff pollution in Newport Beach-area watersheds. Funds payable from the Account may accrue to a public agency or a non-profit entity.

G. Compliance Required. Compliance with an approved Water Quality Management Plan shall be a condition of any required planning approval.

Newport Beach Municipal Code

Chapter 14.36, Water Quality

City of Newport Beach Municipal Code (Municipal Code) Chapter 14.36, Water Quality, states the City's intent to participate in the improvement of water quality and comply with federal requirements for the control of urban pollutants to storm water runoff, which enters the network of storm drains throughout Orange County. All new development and significant redevelopment projects within the City are required to comply with the DAMP and any conditions and requirements established by the Community Development Department and/or Public Works Department, which are reasonably

related to the reduction or elimination of pollutants in storm water runoff from the project site. Prior to the issuance of a grading permit, building permit or nonresidential plumbing permit for any new development or significant redevelopment, the Community Development Department and/or Public Works Department shall review the project plans and impose terms, conditions and requirements on the project in accordance with Chapter 14.36.

Chapter 15.10, Excavation and Grading Code

Municipal Code Chapter 15.10, Excavation and Grading Code, is intended to safeguard life, limb, property and the public welfare by regulating grading, drainage and hillside construction on private property and for similar improvements proposed by private interests on City right-of-way where regulations are not otherwise exercised. Chapter 15.10 establishes grading, fill, drainage, and erosion control standards required during construction activities.

Where the Building Official determines that existing or proposed construction may alter or has altered drainage conditions, creating an adverse or dangerous condition, or where existing drainage conditions result in an adverse or dangerous condition, a drainage permit may be required for the purpose of preventing or eliminating the adverse or dangerous conditions and require corrective work to be accomplished. Such corrective work would be designed in a manner that will retain dry weather runoff and minor rain events within the site consistent with the City's MS4 Permit unless otherwise approved by the Building Official.

Chapter 15.50, Flood Damage Prevention

Chapter 15.50, Flood Damage Prevention, is intended to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas. Chapter 15.50 includes the following methods and provisions:

- Restrict or prohibit uses that are dangerous to health, safety, and property due to water or erosion hazards, or that result in damaging increases in erosion or flood heights or velocities;
- Require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, that help accommodate or channel flood waters;
- Control filling, grading, dredging, and other development that may increase flood damage; and
- Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or that may increase flood hazards in other areas.

5.11.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA SIGNIFICANCE CRITERIA

Appendix G of the *CEQA Guidelines* contains the Environmental Checklist form that was used during the preparation of this EIR. Accordingly, a project may create a significant adverse environmental impact if it would:

- Violate any water quality standards or waste discharge requirements (refer to Impact Statements HWQ-1 and HWQ-2);

- Substantially deplete groundwater supplies or substantially interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted) (refer to Section 8.0, *Effects Found Not to be Significant*);

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site (refer to Impact Statement HWQ-2);

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface run-off in a manner that would result in flooding on- or off-site (refer to Impact Statement HWQ-2);

- Create or contribute to run-off water that would exceed the capacity of existing or planned storm water drainage systems or provision of substantial additional sources of polluted run-off (refer to Impact Statement HWQ-2);

- Otherwise substantially degrade water quality (refer to Impact Statements HWQ-1 and HWQ-2);

- Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map (refer to Section 8.0, *Effects Found Not to be Significant*);

- Place a structure within a 100-year flood hazard area that would impede or redirect flood flows (refer to Section 8.0, *Effects Found Not to be Significant*);

- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam (refer to Section 8.0, *Effects Found Not to be Significant*);

- Result in inundation by seiche, tsunami, or mudflow (refer to Impact Statement HWQ-3);

- Result in significant alteration of receiving water quality during or following construction (refer to Impact Statement HWQ-1);

- Result in a potential for discharge of storm water pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas (refer to Impact Statement HWQ-1 and HWQ-2);

- Result in the potential for discharge of storm water to affect the beneficial uses of the receiving waters (refer to Impact Statement HWQ-1 and HWQ-2);

- Create the potential for significant changes in the flow velocity for volume of storm water runoff to cause environmental harm (refer to Impact Statement HWQ- 2); and/or

- Create significant increases in erosion of the project site or surrounding areas (refer to Impact Statement HWQ-1).

5.11.4 IMPACTS AND MITIGATION MEASURES

WATER QUALITY – SHORT-TERM IMPACTS

HWQ-1 GRADING, EXCAVATION, AND CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT COULD IMPACT WATER QUALITY.

Impact Analysis: There are three sources of short-term construction-related storm water pollution associated with the proposed project, which include the following:

- Handling, storage, and disposal of construction materials containing pollutants;
- Maintenance and operation of construction equipment; and
- Earthmoving activities.

These sources, if not controlled, can generate soil erosion as well as on- and off-site transport via storm run-off or mechanical equipment. Poorly maintained vehicles and heavy equipment leaking fuel, oil, antifreeze, or other vehicle-related fluids on the project site are also common sources of storm water pollution and soil contamination. Generally, standard safety precautions for handling and storing construction materials can adequately reduce the potential pollution of storm water by these materials. These types of standard procedures can be extended to non-hazardous storm water pollutants such as sawdust, concrete washout, and other wastes.

In addition, grading activities can greatly increase erosion processes, leading to impacts on storm drains and sediment loading to storm run-off flows. Two general strategies are recommended to prevent soil materials from entering local storm drains. First, erosion control procedures should be implemented for those areas that must be exposed, and secondly, the project site should be secured to control off-site transport of pollutants.

In order to reduce the amount of on-site exposed soil, graded areas would be protected against erosion once they are brought to final grade through the implementation of Best Management Practices (i.e., hydraulic mulching, hydroseeding, soil binders, etc.). Furthermore, the project would

be required to prepare and submit a Notice of Intent (Mitigation Measure HWQ-1) and a SWPPP (Mitigation Measure HWQ-2) to the SWRCB demonstrating compliance with the Construction General NPDES Permit. Construction activities for the proposed project would be subject to inspection by the City Department of Public Works. The General Permit requires that non-storm water discharges from construction sites be eliminated or reduced to the maximum extent practicable, that a SWPPP be developed governing construction activities for the proposed project, and that routine inspections be performed of all storm water pollution prevention measures and control practices being used at the site, including inspections before and after storm events. Upon completion of the project, the applicant would be required to submit a Notice of Termination to the SWRCB (Mitigation Measure HWQ-3) to indicate that construction is completed.

Construction activities associated with the proposed project would have a less than significant impact on surface water quality and would not significantly impact the beneficial uses of receiving waters with compliance with Mitigation Measures HWQ-1 through HWQ-3, which would ensure adherence to construction requirements per the State. With implementation of Mitigation Measures HWQ-1 through HWQ-3, short-term water quality impacts would be reduced to less than significant levels.

Mitigation Measures:

HWQ-1 Prior to Grading Permit issuance and as part of the project's compliance with the NPDES requirements, a Notice of Intent (NOI) shall be prepared and submitted to the State Water Resources Quality Control Board (SWRCB), providing notification and intent to comply with the State of California General Permit.

HWQ-2 The proposed project shall conform to the requirements of an approved Storm Water Pollution Prevention Plan (SWPPP) (to be applied for during the Grading Plan process) and the NPDES Permit for General Construction Activities No. CAS000002, Order No, 2009-0009-DWQ, including implementation of all recommended Best Management Practices (BMPs), as approved by the State Water Resources Quality Control Board (SWRCB).

HWQ-3 Upon completion of project construction, the project applicant shall submit a Notice of Termination (NOT) to the State Water Resources Quality Control Board (SWRCB) to indicate that construction is completed.

Level of Significance: Less Than Significant With Mitigation Incorporated.

LONG-TERM OPERATIONAL IMPACTS

HWQ-2 IMPLEMENTATION OF THE PROPOSED PROJECT COULD POTENTIALLY RESULT IN INCREASED RUN-OFF AMOUNTS AND DEGRADED WATER QUALITY.

Impact Analysis: This section analyzes the proposed project conditions and compares them to the existing conditions to determine resultant impacts on drainage, run-off, and water quality.

Proposed Land Use

The project would result in the removal of the former City of Newport Beach City Hall and allow for the development of the 130-room Lido House Hotel. The four-story hotel would be organized around a central courtyard with outdoor pool, fire place, water feature, and formal lawn area. Approximately 143 surface parking spaces would also be provided on-site. Newport Beach Fire Department Fire Station No. 2 would remain in operation at the project site.

Proposed On-Site Drainage Facilities

The proposed project would maintain the existing drainage patterns with the exception that flows would no longer be routed north through the Via Lido Shopping area; refer to Exhibit 5.11-3, *Proposed Drainage Conditions*. Due to the shallow depths of the adjacent public storm drain catch basins and the need to treat low flows to conform to the requirements of Low Impact Development and the DAMP, the project proposes using surface flows with localized area drains to drain the site. This method maximizes the potential for runoff infiltration which is the primary BMP for water quality purposes. Infiltration is also the preferred methodology for mitigating pollutants of concern per the County DAMP. In the proposed configuration, localized area drains would be used along landscaping adjacent to drain the courtyard/pool area. All other flows would be conveyed overland.

The drive approach area from the northerly parking area of the project site to the Via Lido Plaza would be re-graded to prevent runoff from Via Lido Plaza onto the site. Runoff would be diverted westerly within the Via Lido Plaza to the westerly inlet in the parking area connected to catch basin 1. This would alter the routing of the flow, but not the destination. Since there is not a significant difference in flow path length, there would be no significant impact associated with the alteration. This alteration is being proposed primarily to reduce the impact of off-site runoff on the on-site water quality BMPs.

The proposed project would be protected from flooding by allowing overflow from the central courtyard areas to 32nd Street. The proposed finished floor would be over one-foot above the highest top of curb elevation of adjacent public street curbs.

Proposed Storm Water Drainage

Table 5.11-2, *Comparison of Existing and Proposed Flowrates*, provides a comparison of existing and proposed project conditions for the peak flow rates for the 2-year, 10-year, 25-year, and 100-year storm event runoff for the project site.

As indicated in Table 5.11-2, the proposed project would increase peak flow rates in the 100-year storm event above existing conditions, potentially resulting in a significant impact to off-site municipal storm drain facilities and streets.

Table 5.11-2
Comparison of Existing and Proposed Flowrates

Node Existing/ Proposed	Flow (cfs)											
	2-year			10-year			25-year			100-year		
	Existing	Proposed	Change	Existing	Proposed	Change	Existing	Proposed	Change	Existing	Proposed	Change
13/23[1]	3.7	2.7	-1.0	6.8	4.9	-1.9	8.2	5.9	-2.3	8.6	6.4	-2.2
33/13[2]	2.4	3.3	0.9	4.5	6.1	1.6	5.4	7.3	1.9	6.9	9.4	2.5
41/NA[3]	1.0	0	-1.0	1.9	0	-1.9	2.2	0	-2.2	2.9	0	-2.9
51/62[4]	0.4	1.1	0.7	0.7	1.9	1.2	0.8	2.3	1.5	1.0	3	2.0
61/43[5]	0.7	0.5	-0.2	1.3	0.8	-0.5	1.5	1.0	-0.5	2.0	1.2	-0.8
NA/51[6]	0	0.4	0.4	0	0.7	0.7	0	0.8	0.8	0	1.1	1.1
Total	7.5	7.5	0	13.9	13.6	-0.3	16.6	16.3	-0.3	19.4	19.5	0.5

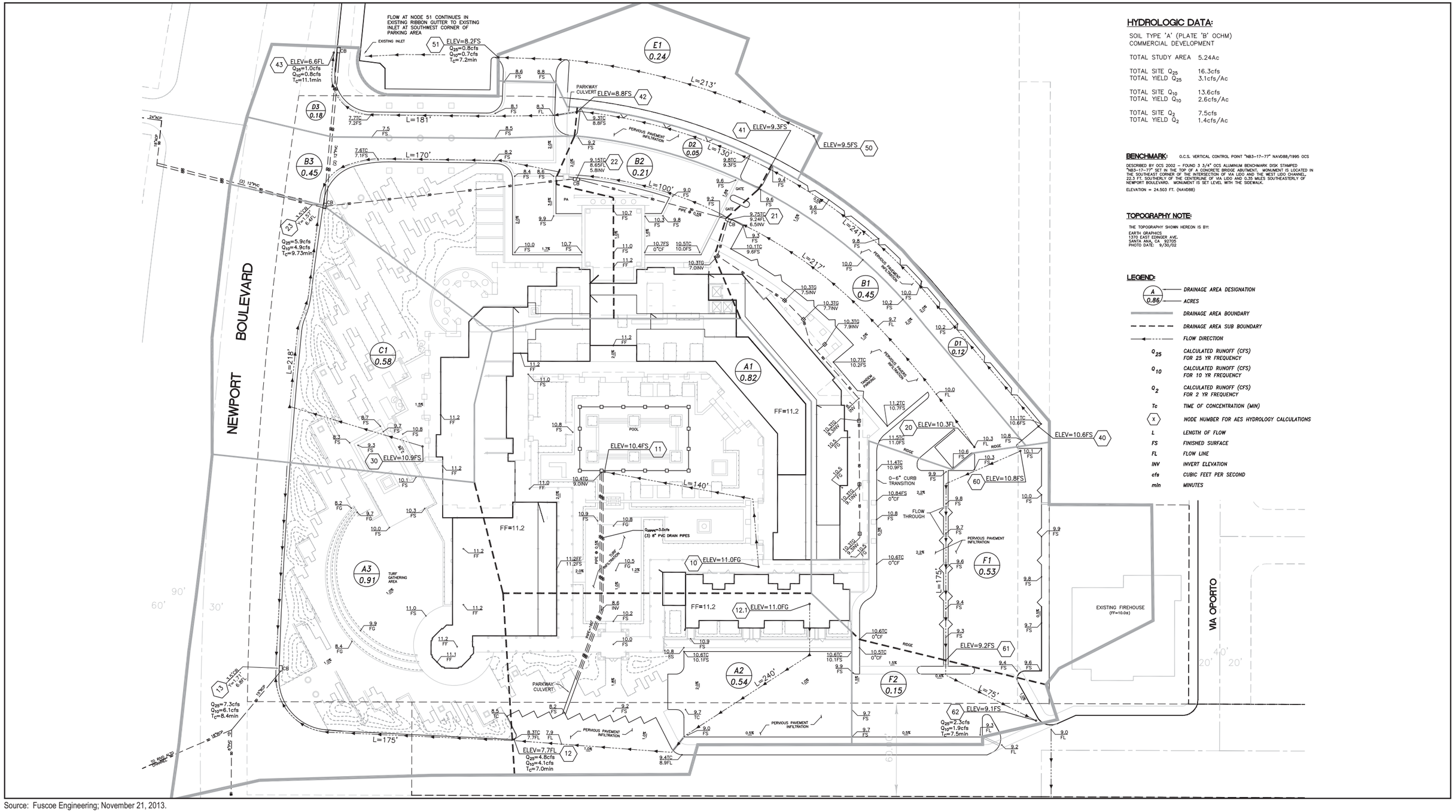
Notes:
1. Catch basin at southeast corner of main shared entry intersection
2. Catch basin at southwest corner of project
3. Flow to existing Lido shopping area. This is eliminated in proposed design.
4. Flow to Villa Way
5. Flow to Newport Boulevard (northerly side main entry). Not included with total, Confluence at Node 13
6. Flow contained in Lido shopping area

Source: Fuscoe Engineering, Inc., *Preliminary Hydrology Report Lido House Hotel*, January 26, 2014.

Off-Site Municipal Storm Drain Facilities and Streets

Runoff to the off-site storm drain facilities would be equal to or less than existing conditions for the 2-year, 10-year, and 25-year storm events. Runoff would be slightly increased for the 100-year storm event. Although the balance of flows to the existing catch basins would be altered with the proposed project (CB 1 receiving less flow and CB 2 receiving more flow) this would not affect the utility of the existing storm drain system. The existing system has a built-in balancing mechanism due to the very flat nature of Newport Boulevard. Should one catch basin be overwhelmed with flow, the excess flow would overtop the high point in Newport Boulevard, located approximately midpoint along the frontage of the project, before the water surface elevation can reach the top of curb elevation. This would keep any excess flow within the streets and hydraulically balance the catch basins. Calculations indicate that this condition occurs currently at the 10-year event and would continue to occur; refer to Appendix 3 of the Hydrology Study included in Appendix 11.8. Since the net proposed tributary flow to Newport Boulevard from the proposed project would be less than existing flows, and the street geometry allows for a balancing of flows, it can be concluded that the proposed project would not significantly impact the existing storm drain system in Newport Boulevard. A less than significant impact would occur.

The proposed project would increase flows to Villa Way and the headwater of the storm drain system at Villa Way and 31st Street. For any storm event greater than the 10-year event, flows in the narrow portion of Villa Way, south of the east-west alley between 31st and 32nd Streets would overtop the crown of the street and split flows in Villa Way would occur.



Source: Fuscoe Engineering; November 21, 2013.

NOT TO SCALE

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04/14 • JN 137892

LIDO HOUSE HOTEL
ENVIRONMENTAL IMPACT REPORT

Proposed Drainage Conditions

Exhibit 5.11-3

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The added flows for the 100-year event would increase the depth of the flow in Villa Way by approximately 0.01-feet (1/8 inch). According to the Hydrology Report, the flow depths would remain below the top of curb elevations. The added depth would have a less than significant impact on the sump catch basins on the northerly side of 31st Street and Villa Way and therefore, would not significantly alter the flow characteristics of the existing storm drain system. The most likely effect would be slightly longer stream detention in the streets. Impacts would be less than significant.

Overall, the proposed project would be feasible from a drainage standpoint and would have a less than significant impact on the existing storm drain infrastructure.

Storm Water Quality

The project site would likely experience pollutant generation due to the proposed land uses, potentially increasing the generation of suspended solids/sediments, nutrients, heavy metals, pathogens, pesticides, oil and grease, toxic organic compounds, and trash and debris. Due to the fact that the Lower Newport Bay is listed on the 303(d) list for chlordane, copper, DDT, indicator bacteria, nutrients, PCBs, pesticides, and sediment toxicity, and has a TMDL for metals, nutrients, pathogens, pesticides, priority organics, and siltation, the proposed development could have a significant adverse impact to storm water quality if not mitigated.

The SWRCB Municipal NPDES Storm Water Permit for the County of Orange and the Incorporated Cities of Orange County requires applicants to prepare a WQMP to manage post-construction storm water runoff associated with development. The proposed project is considered a "Priority Project" in accordance with the 2011 Countywide Model WQMP, as it includes the addition and replacement of more than 5,000 square feet of impervious surfaces on an already developed site. A Preliminary WQMP has been prepared for the proposed project; refer to Appendix 11.8. The Preliminary WQMP describes the development and its operations, identifies potential sources of storm water pollution, and recommends appropriate BMPs or pollution control measures to reduce the discharge of pollutants in storm water runoff. Recommended BMPs include site design, source control, and low impact development; refer to Section 4.0 of the Preliminary WQMP (included in Appendix 11.8) for a complete list of BMPs. The Final WQMP, to be approved by the City, would provide the final BMPs applicable to the proposed project (Mitigation Measure HWQ-4). Implementation of the Final WQMP would ensure that post-construction water quality impacts, including impacts to beneficial uses of receiving waters, associated with the proposed project would be reduced to the Maximum Extent Practicable (MEP). Post-construction water quality impacts would be reduced to a less than significant level.

Mitigation Measures:

HWQ-4 Prior to issuance of a grading permit, the project applicant shall submit a Final Water Quality Management Plan for approval by the Building Official that complies with the requirements of the latest Orange County Public Works Drainage Area Management Plan.

Level of Significance: Less Than Significant With Mitigation Incorporated.

TSUNAMI, ROUGE WAVES, SEICHE, OR MUDFLOW

HWQ-3 THE PROPOSED PROJECT COULD POTENTIALLY BE INUNDATED BY TSUNAMIS, ROGUE WAVES, SEICHES, OR MUDFLOWS.

Impact Analysis: Although the project site is located near Newport Bay, according to the General Plan EIR the probability that damaging seiches would develop in in Newport Bay is considered low. Additionally, the project site and surrounding area are relatively flat and the project site is not located downslope from an area of potential mudflow. According to Safety Element Figure S1, *Coastal Hazards* and Figure S3, *Flood Hazards*, the project site is not located within an area identified as having the potential for wave action. Thus, less than significant impacts would occur in this regard.

According to the Tsunami Inundation Map for the Newport Beach Quadrangle, the project site is located within a tsunami inundation area. In addition, General Plan Figure S1, *Coastal Hazards*, identifies the project site as located within a 100-year tsunami inundation at extreme high tide zone, with an identified inundation elevation of 13.64 feet.

According to the General Plan Safety Element, Newport Beach is generally protected from most distantly generated tsunamis by the Channel Islands and Point Arguello, except for those generated in the Aleutian Islands, off the coast of Chile, and possibly off the coast of Central America. Tsunamis generated in the Alaskan region take approximately six hours to arrive in the southern California area, while tsunamis generated off the Chilean coast take 12 to 15 hours. Given those timeframes, coastal communities in southern California can receive adequate warning, allowing them to implement evacuation procedures.

Alternatively, very little warning time, if any, can be expected from locally generated tsunamis. Locally generated tsunamis caused by offshore faulting or landsliding immediately offshore from Newport Beach are possible, and these tsunamis have the potential to be worst-case scenarios for the coastal communities in Orange County. Modeling off the Santa Barbara coast suggests that locally generated tsunamis can cause waves between six and 60 feet high, and that these could impact the coastline with almost no warning, within minutes of the causative earthquake or slump. Areas within Newport Beach that are most likely to be impacted by a tsunami include West Newport, Balboa Peninsula, Lido Isle, Balboa Island, and Upper Newport Bay. Thus, the potential hazard from tsunamis run-up is considered significant, which is consistent with many coastal areas.

The *City of Newport Beach Emergency Operations Plan* (EOP) details the City's specific responsibilities before, during, and after any emergency, including potential tsunamis. Although typical emergencies generally occur without advance warning, and therefore require prompt mobilization and commitment of the emergency organization after the onset of the emergency, warning systems and evacuation plans would minimize hazards associated with tsunamis. Timely warning and information broadcasts provide the ability for residents to prepare for evacuation. The project site is located within the City's outdoor emergency siren system area. The sirens may be activated for a tsunami or any impending emergency and are not specific to any one type of emergency. In addition, the EOP identifies evacuation areas and routes in the event of a tsunami. During an evacuation, persons in proximity to the project site can utilize Newport Boulevard.

During or following local emergencies, the City is the first agency involved. If the emergency is so large that the City's resources are inadequate or exhausted, assistance would be requested of, and provided by, nearby jurisdictions through mutual aid agreements. Neighborhood groups can assist the City by conducting first aid and search and rescue operations in times of large disasters. When mutual aid systems are not sufficient for the disaster task, the County requests assistance from the State. The Governor's Office of Emergency Services (OES) coordinates regional emergency response and disaster assistance. The State may also request aid from the Federal government in the form of a Presidential Disaster Declaration. FEMA then provides disaster assistance, temporary housing assistance, and recovery funds after a Presidential Disaster Declaration.

Upon implementation of the City's EOP, potential impacts associated with the inundation by a tsunami would be reduced to less than significant levels.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

5.11.5 CUMULATIVE IMPACTS

The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

- **GRADING, EXCAVATION, AND CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD POTENTIALLY IMPACT WATER QUALITY.**

- **IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD POTENTIALLY RESULT IN INCREASED RUN-OFF AMOUNTS AND DEGRADED WATER QUALITY**

Impact Analysis: Cumulative projects would have the potential to affect water quality during construction and long-term operation. The projects would contribute storm water flows to the local and regional drainage facilities. However, construction activities associated with cumulative projects would have a less than significant impact on surface water quality with adherence to State-required construction requirements. Each project would also be required to comply with existing water quality standards, and include BMPs as necessary. Therefore, overall cumulative impacts would be less than significant.

Development of the proposed project, along with related cumulative projects, would result in increased potential for short-term construction and long-term operational water quality impacts within the area. However, the proposed project would adhere to NPDES requirements and implement a SWPPP with specific BMPs, as required by Mitigation Measures HWQ-1 through HWQ-3 during construction activities. Additionally, Mitigation Measures HWQ-4 requires the preparation of a project-specific WQMP, which would further reduce operational water quality impacts as a result of the proposed project. Therefore, the project impacts would not be cumulatively considerable, and impacts in this regard are less than significant.

Cumulative projects would have the potential to affect hydrology and drainage of the area. The projects would contribute storm water flows to the local and regional storm water system and drainage facilities. However, each individual project would be required to submit individual analyses for review and approval prior to issuance of grading or building permits. Each analysis must illustrate how peak flows generated from each related project site would be accommodated by the City's existing and/or proposed storm drainage facilities. Future projects would also be required to comply with existing water quality standards, implement site-specific improvements, and include BMPs as necessary. Therefore, overall cumulative impacts would be less than significant.

Implementation of the proposed project, in conjunction with related cumulative projects, would result in increased potential for hydrology and drainage impacts within the City. However, although the project would increase the flow rate for the 100-year event, the proposed project would not significantly alter the flow characteristics of the existing storm drain system or significantly impact existing storm drain infrastructure Therefore, the project impacts would not be cumulatively considerable, and impacts in this regard are less than significant.

Mitigation Measures: Refer to Mitigation Measures HWQ-1 through HWQ-4.

Level of Significance: Less Than Significant With Mitigation Incorporated.

- **THE PROPOSED PROJECT COULD POTENTIALLY BE INUNDATED BY TSUNAMIS, ROGUE WAVES, SEICHES, OR MUDFLOWS.**

Impact Analysis: Back Bay Landing and Balboa Marina Expansion, as well as the proposed project are located within tsunami inundation areas and tsunami evacuation zones. The proposed project and these two cumulative projects could potentially experience tsunami run-up associated with seismic activity due to their proximity to the coast. Newport Beach has adopted an Emergency Operations Plan that would be implemented in the event of an emergency, including tsunamis. Warning systems and evacuation plans would minimize hazards associated with tsunamis. In the event of an emergency, patrons of individual development projects would utilize the roadways closest to the site for evacuation. Although there is the potential for evacuation of the project site and cumulative projects to occur simultaneously, implementation of the City's Emergency Operations Plans would facilitate emergency evacuation of the area. During an evacuation, persons in proximity to the project site can utilize Newport Boulevard. Therefore, the project would not contribute to cumulative impacts and impacts in this regard are not cumulatively considerable.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

5.11.6 SIGNIFICANT UNAVOIDABLE IMPACTS

No unavoidable significant impacts related to hydrology and water quality have been identified following implementation of the recommended mitigation measures.